Approaches to managing chronic constipation in older people within the community setting

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Management of Chronic Constipation within the Community Setting

Abstract

Constipation is a common presenting problem within the community, but its treatment is often unsatisfactory. For older adults, constipation can have a gradual onset over a number of years, with many people “self-medicating” with over the counter laxatives and herbal products, resulting in the need for daily laxatives (McCrea et al, 2008 and McCormick., Flemming, and Charlton 1995). This article will consider best practice for the assessment, treatment and prevention of constipation in adults within the community.

Definition of constipation

Constipation is difficult to define due to the differing perception of “normal” amongst populations. Causes of constipation can be divided into primary (idiopathic) and secondary causes. People with constipation can be separated into two main categories: those with defecation difficulties (with normal frequency) and those with transit abnormalities (which can present as infrequent defaecation), (Muller-Lissner and Wald, 2010).

Prevalence

Despite the introduction of a diagnostic criteria (Mostafa, 2008), prevalence figures are difficult to interpret within research studies due to differing study populations, definitions used and whether pregnant women and those with underlying pathology or idiopathic constipation are included. Constipation is one of the most prevalent gastrointestinal complaints with UK estimates in adults between 8.2% to 52% (Shafe et al., 2011, Kaschick., Navck and Ostgathe, 2003 and Wald et al., 2010). Self-reported constipation and admissions to hospital for constipation are more common in women than in men. The overall female-to-male ratio is approximately 3:1 (Schmidt et al., 2015).

Around half of people admitted to palliative care report constipation, with around 80% requiring laxatives, especially those taking opioid medications (Fallon and O'Neill, 1998 and Sykes, 2013). Studies are often conducted on patients with chronic constipation, however constipation can be a transient, short term problem, which may not be included within prevalence studies (Shafe et al., 2011). Pregnancy increases the risk of constipation, with estimates of one in four women experiencing constipation (Bradley et al., 2007). It is known that prevalence increase in the older population, with higher rates reported in those in institutional care (Talley, 2004). The increased frequency of constipation in adults older than 65 years may reflect a combination of dietary alterations, decreases in muscle tone and exercise, and the use of medications that may result in relative dehydration or colonic dysmotility.

Risk factors for constipation include:

- Underlying medical condition
- Medication
- Toileting facilities
- Mobility
- Nutritional intake
- Fluid Intake

Diagnostic criteria

Constipation refers to a decrease in the frequency and or a dificulty in passing bowel movements. The stool of a oerson who is constipated will be typically hard as it contains less water than normal. Constipation is a symptom and not a disease.

Generally constipation is difficult to define as symptoms and the perception of what is “normal” varies from person to person and across cultures. “Normal” frequency of bowel movements varies, ranging from three bowel movements per day to three per week. With constipation often defined as a frequency of fewer than three bowel movements per week (Higgins and Johanson., 2004). In practice this can be misleading, as many people will have fewer than three bowel movements with no associated straining, bloating, pain or discomfort and therefore not consider themselves constipated. However if a person has had a generally regular frequency of bowel function that changes acutely and persists for a long period of time, without a known cuase, this should prompt them to consult a healthcare professional. Advice should be sought if a person has not opened their bowels for three succesive days, the fecaes is hard and the person experiences difficulty or pain on defeacation.

The Rome III criteria (Mostafa, 2008) is a standardised tool to aid the diagnosis of chronic constipation. Diagnosis is based on two or more of the following symptoms being present for at least 12 weeks in the previous 6 months;

- Straining at defecation on at least a quarter of occaisions
- Stools that are lumpy/hard on at least one quarter of occaisions
- A sensation of incomplete evacuation on at least one quarter of occaisions
- Three or fewer bowel movements a week

Chronic constipation is typically diagnosed when a person has bowel motions twice a week or less for two consecutive weeks, especially when other symptoms such as straining, abdominal discomfort and incomplete evacuation or faecal overflow are present.

There are several pathophysiological types of chronic constipation:

- Colonic inertia – where the movement of the bowel contents through the bowel is slowed
- Outlet delay (or obstructed defecation) – this can be due to:
    - pelvic floor dyssynergia -where the muscles of the pelvic floor contract or fail to relax during defecation attempts
    - and anismus -where the external anal sphincter contracts instead of relaxing during defecation
- Constipation that occurs without delayed colonic transit or outlet delay

(Pare et al, 2007)

Impact of constipation

The impact of constipation on an individual’s quality of life can be significant. A systematic literature review by Belsey et al in 2010, demonstrated that the impact is comparable to other chronic long term conditions and that the mental health effects predominated over the physical domains.There is also a significant economic burden for both patients and healthcare providers. The economic burden on patients includes the cost of

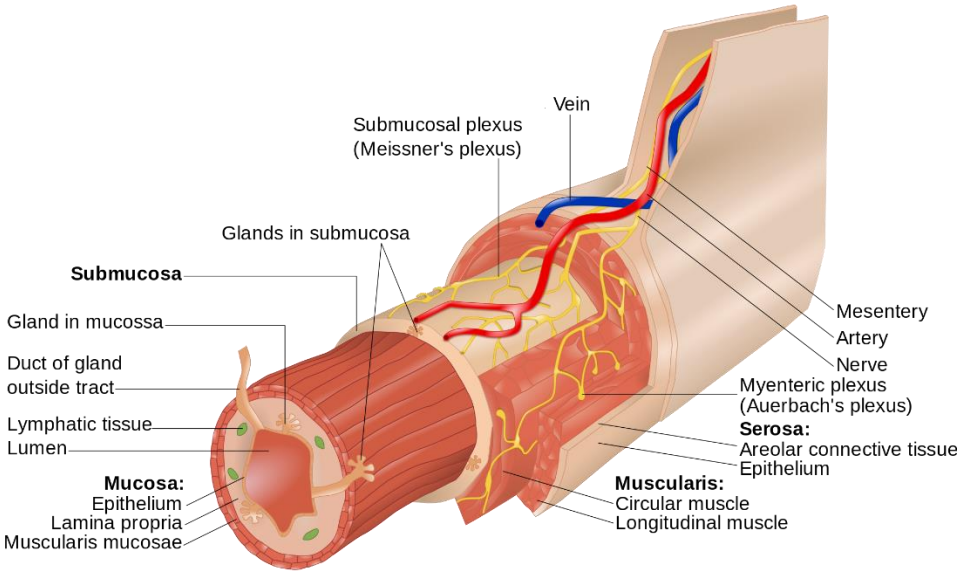
medications/prescription charges, lost/restricted days of activity (including days off work and lost wages) and the cost of healthcare visits (Dennison et al, 2005).

The cost to the health service is also significant. In the UK around 500,000 GP consultations each year are for constipation (Norton, 2006). Constipation accounts for an estimated 10% of community nursing time (Norton, 2006), with 80% spending up to half a day a week treating and managing constipation (Larkin et al., 2008). Studies indicate that up to 50% of older patients are faecally impacted (Spinzi, 2007 and Rao and Go., 2010).Faecal impaction often requires intervention with manual evacuation, which as well as having cost implications for healthcare, places the patients health at risk and causes a loss of dignity and distress for older people (Addison et al., 2003) In England in 2011, 61, 162 hospital admissions were attributed to a primary diagnosis of constipation, with more than 40% of these aged 65yrs and over (Dr Foster Health, 2011). Over 17million laxative items were prescribed in the uk in 2013 (Health and Social Care Information Centre , 2013). The " Evaluation of the Scale, Causes and Costs of Waste Medicines" (York Health Economics Consortium and The School of Pharmacy, University of London , 2010) report indicted that medicines for the gastro-intestinal system represented the most frequently wasted medicines. With laxatives the mostly frequently wasted medicines within care homes.

Anatomy and physiology of normal bowel function

The colon (large bowel) is a muscular tube around 1.5 metres in length, with the rectum 12-15cm in length, opening into the anal canal. The internal wall of the colon mostly consists of two layers of smooth muscle. These two smooth muscle layers consist of longitudinal fibres in the outer layer and circular fibres in the inner layer (see figure 1 below) (Bajwa and Emmanuel, 2009, Emmanuel, 2004 and Long and Cheshire, 2002). The contraction of these two layers of muscle contributes to breaking down food, mixing it with the digestive secretions and propelling it forward, referred to as peristalsis. Peristalsis constricts the muscle and then propels the narrowed portion slowly down the length of the bowel, pushing anything in front of the narrowing forward. The anus contains the internal anal sphincter, which is composed of smooth muscle, which is not under voluntary control, and the external sphincter, composed of skeletal voluntary muscle (Bajwa and Emmanuel, 2009, Emmanuel, 2004 and Long and Cheshire, 2002).

Figure 1 – Muscle layers of the large bowel



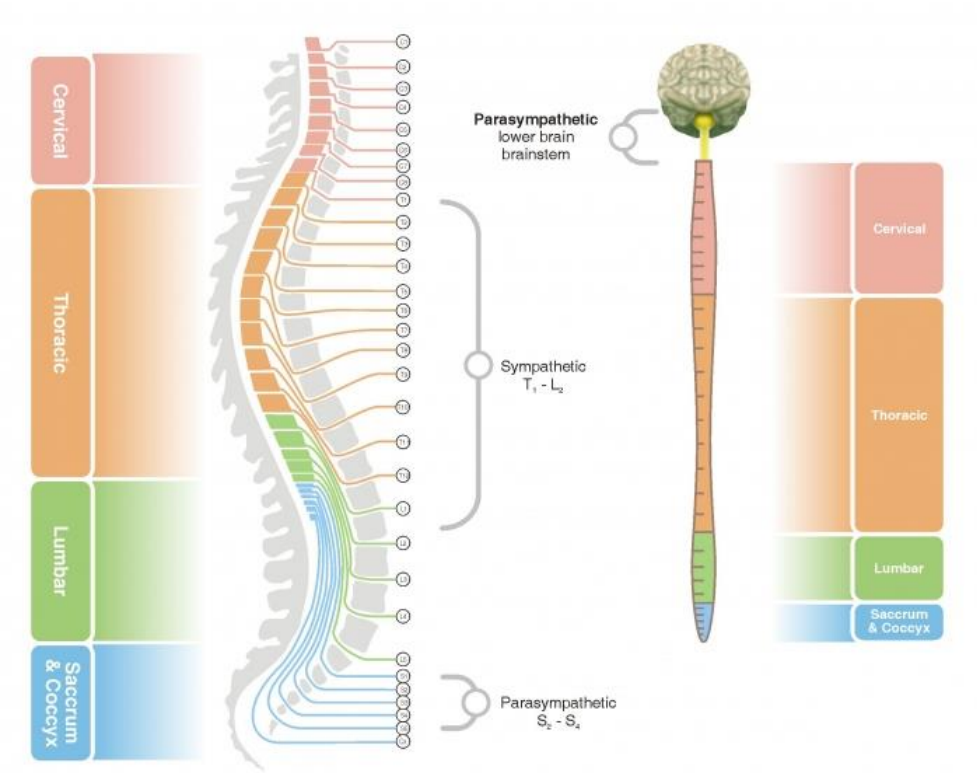
Neurological control

A complex series of nerves control the lower bowel. The gastrointestinal tract is controlled by the autonomic nervous system with sympathetic and parasympathetic nerves working together. Innervation is the lower bowel depends on autonomic and somatic nerves. The nerves supplying the large intestine are via the sympathetic and parasympathetic nerves. The external anal sphincter is under voluntary control and is supplied by motor nerves from lower levels of the spinal cord (Bajwa and Emmanuel, 2009 and Emmanuel, 2004).

The extrinsic nerve supply comprises parasympathetic, sympathetic and somatic nerves. The vagus nerve is parasympathetic and innervates the upper sections of the gastro-intestinal tract up to the splenic flexure (Bajwa and Emmanuel, 2009 and Emmanuel, 2004). The pelvic nerves carry parasympathetic nerve fibers from the S2-S4 levels of the spinal cord to the descending colon and rectum. Sympathetic nerve innervation originates from the superior and inferior mesenteric nerves (T9-T12) and the hypogastric nerve (T12-L2). Sympathetic innervation comes from the superior and inferior mesenteric nerves (T9-T12) and the hypogastric nerve (T11-L2). The hypogastric nerve sends out sympathetic innervation from the L1, L2, and L3 spinal segments to the lower colon, rectum, and sphincters. Leading to relaxation of the rectum and anal canal (Bajwa and Emmanuel, 2009 and Emmanuel, 2004). The somatic pudendal nerve (S2-4) innervates the pelvic floor and the external anal sphincter. This nerve stimulates the rectum and anal canal to contract or tighten, causing the internal anal sphincter to relax, allowing faeces to pass through the anus while the rectum and anal canal contract, assisting in defecation and is the process of emptying faeces from the bowel. The internal anal sphincter functions outside of conscious control (involuntary control), meaning that it operates in an automatic manner (Bajwa and Emmanuel, 2009 and Emmanuel, 2004).

The bowel also has an intrinsic nervous system (known as the enteric nervous system), composed of the submucosal (ie, Meissner) and myenteric (ie, Auerbach) plexuses, which largely regulate segment-to-segment movement of the GI tract (see figure 2 below) (Bajwa and Emmanuel, 2009 and Emmanuel, 2004).

Figure 2 – Neurological control of the Bowel



Function of the Large Bowel

The large bowel is designed to undertake several functions including:

- Storage of food prior to elimination
- Absorption of remaining water, electrolytes and some vitamins
- Synthesis of Vitamin K and some Vitamin B by colonic bacteria
- Secretion of mucus to lubricate the faeces
- Elimination of food residual

The longer that faecal matter remains within the large bowel, the more water is re-absorbed and the harder the stools become making them more difficult to pass.

(Bajwa and Emmanuel, 2009 and Emmanuel, 2004).

How to know when it's time to 'go':

As faeces collects in the rectum, the walls of the rectum gradually expand as the faeces build up. At a certain point, the brain senses that the rectum is "full," and the urge to defecate occurs. The person must then adopt correct posture to facilitate bowel evacuation, which leads to a rise in intra-abdominal pressure. The internal and external anal sphincters relax and the rectum contracts to expel stool. This should lead to the passage of a soft formed stool with minimal effort. The sphincter then "snaps shut" after completion (Bajwa and Emmanuel, 2009 and Emmanuel, 2004).

Neurogenic Bowel dysfunction

Patients with a neurogenic bowel will have motor and sensory dysfunction resulting in either a reflex bowel or areflexic (flaccid) bowel. The table below provides a guide to distinguish between reflex bowel dysfunction areflexic dysfunction (Spinal Cord Injury Centres of the United Kingdom and Ireland, 2012).

Table 1 Guide to distinguishing Motor function in Spinal Cord injured patients (taken from: (Spinal Cord Injury Centres of the United Kingdom and Ireland, 2012)

Reflex bowel function	Areflexic (flaccid) bowel function
Positive anal reflex (anal wink) – visible contraction of anus in response to pinprick of surrounding skin	No anal reflex (anal wink)
Positive bulbo-anal reflex – contraction of anus in response to pressure on glans penis/clitoris	Absent bulbo-anal reflex
Injury/damage usually at or above T12 Reflex paralysis	Injury/damage usually L1 and below (conus or cauda equine, flaccid or areflexic paralysis)

The ideal bowel movement:

- The feeling you want to go is definite but not irresistible
- Once you sit on the toilet there is no delay
- No conscious effort or straining
- The stool glides out smoothly & comfortably
- Followed by a pleasant feeling of relief

Assessment

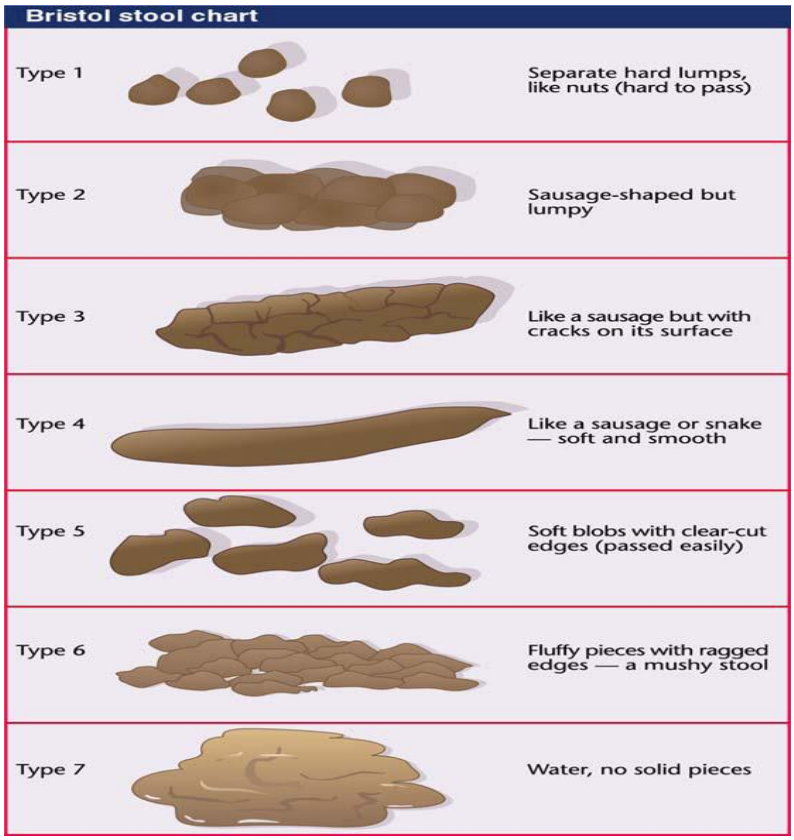
The first part of an assessment is to gain an overview of the person's current pattern of bowel function. A baseline chart should be kept for 3-14 days depending on how often the person has their bowels open (see figure 3 for an example baseline bowel chart). The baseline also provides a useful measure of progress and success of any treatment plan.

Figure 3 Baseline bowel chart (example)

DATE	*TIME*	*Type of stool ~*	*Quantity of*	*Did you*	*Soiled Underwear*	*Type & dose of*

		use number on chart	*stool* *Large (L)Medium (M)Small (S)None (N)*	*strain* *Yes* *No*	*Number of times during the day*	*Type of soiling (Stained/loose/ solid)*	*Laxative*

The baseline chart should be used in conjunction with the Bristol stool chart (Heaton and Lewis, 1997) (see below)



This should be accompanied by a diet (food and fluid intake) diary to establish current intake (see figure 4) kept for at least 7 days. Figure 4 – Diet diary (example)

Day	Meal 1	Meal 2	Meal 3	Snacks	Non-alcoholic drinks (cup/glasses)	Alcohol (glasses)	Other comments (if meals were not typical)

Monday							
Tuesday							
Wednesday							

Also consider:

- The individual (functional and cognitive impairment) – can they sit on the toilet and adopt the correct position (see figure 5) without support or is assistance or a frame required.
- The environment – is the environment suitable, i.e. warm, well lit, private and has toilet paper.
- Underlying medical conditions (see table 1 for conditions that may cause or contribute to constipation)
- Medications -A review of current medication should also be requested, especially if the person has recently started on any new medications (see table 2 for drugs which may cause or contribute to constipation). This review should include any over the counter (OTC) or herbal remedies the patient is taking.
- What the patient has already tried to relieve their constipation, including OTC medications or herbal remedies

Table 1 Conditions which may cause or contribute to constipation

Conditions which may cause or contribute to constipation
• Bowel obstruction • Irritable bowel syndrome • Cancer • Diverticular disease • Dehydration • Admission to hospital for any cause • Hypothyroidism • Neuromuscular disorders • Stimulant laxative abuse • Anorexia • Hypercalcaemia • Pregnancy

Table 2 Drugs which may cause or contribute to constipation

• Opioid analgesics, including compound products e.g. co-codamol, co-dydramol • Drugs with antimuscarinic (anticholinergic) effects including: ▪ Tricyclic/SSRI/SNRI antidepressants ▪ Antipsychotics

- Antimuscarinic anti-parkinsonian drugs, e.g. orphenadrine, benzatropine, trihexyphenidyl and procyclidine
- Antihistamines – especially the older sedating antihistamines e.g. chlorphenamine, promethazine and cyclizine
- Antispasmodics e.g. propantheline and hyoscine

- Calcium salts (note: also contained in some antacids and phosphate binders)
- Aluminium salts (in many antacids)
- Iron salts
- Calcium channel blockers (mainly verapamil)
- Phenothiazines
- Non-steroidal anti-inflammatory drugs (NSAIDs) (although these more commonly cause diarrhoea)
- 5HT3 antagonists e.g. Ondansetron

Figure 5 Correct toilet sitting position

Knees higher than hips
Lean forward and put elbows on knees
Bulge abdomen
Straighten spine

Treatment options

The main aim of treatment is to promote a regular, predictable and comfortable bowel movement for the patient. Ideally this should be achieved with the modification of a person's diet and lifestyle. However for many people laxatives are required. Rectal interventions (suppository/micro-enema, digital rectal stimulation or digital removal of faeces) remain a last resort for most patients, but are the only way to manage patients with reflex bowel dysfunction due to spinal injury. However if the person has sensation in the saddle area around the perineum they are likely to have anorectal sensation. Where sensation is present digital interventions may be too uncomfortable and rectal stimulants (either suppositories or enemas) may provide a better option (Spinal Cord Injury Centres of

the United Kingdom and Ireland, 2012). A local anaesthetic gel can also be used to increase patient comfort.

No investigations are routinely required for constipation before intitiating treatment. However if a secondary cause is suspected, or treatment is ineffective, specialist investigations may be required (NICE, Clinical Knowledge Summaries, 2014).

Before treating chronic constipation, any feacal loading/impaction must be relieved. A combination of oral laxatives and enemas may be required initially to remove feacal loading and impaction. Patients should be advised about lifestyle changes such as diet and fluid modification and the importance of regular meals and increasing exercise and where possible medications that can constipate should be adjusted (NICE, Clinical Knowledge Summaries, 2014).

Diet and fluid modification

Generally people should be advised to eat a balanced diet that contains grains, fruit and vegetables. Any increases in fibre intake should be made gradually in order to minimise flatulence and bloating. Adults should be aiming to eat 18-30grms of fibre per day. It can take as long as 4 weeks to see the effects of increasing fibre in the diet and may require laxatives short term, while the patient modifies their diet (National Institute for Healthcare Excellence (NICE) Clinical Knowledge Summaries, 2014). There are two main types of fibre soluble and insoluble and patients need to be encouraged to increase their insoluble fibre to increase their stool weight and frequency of bowel movements

Types of fibre:

SOLUBLE FIBRE:

- Effectively broken down by enzyme-producing bacteria to produce energy, gas & bulky stools.
- Soluble Fibre forms a gel-like substance which binds to other substances in the gut.
- Lowers cholesterol levels.
- Slows down entry of glucose into the blood, thus improving blood sugar control
-

INSOLUBLE FIBRE:

- Less easily broken down by bacteria.
- Holds water very effectively (up to 15 x its weight) therefore adds weight to stool.
- 'Natures Broom' has protective effects on the gut.

An adequate fluid intake (around 1.5 – 2 litres per day) is also important – particularly if a high fibre diet or fibre supplements have been encouraged, but this can be difficult for some people (NICE, Clinical Knowledge Summaries, 2014). Especially the frail or elderly. Fruits which are in sorbitol and fibre and fruit juices high in sorbitol, can help to treat and prevent constipation. Examples of fruits high in sorbitol are; prunes (and prune juice) and apricots (NICE, Clinical Knowledge Summaries, 2014, Stacewicz-Sapuntzakis et al, 2001 and Lo Voi et al, 1995).

These recommendations are based largely on expert opinion, due to a lack of direct evidence from clinical trials (Heaton, 2006). Speed et al (2010) aimed to investigate the clinical cost effectiveness of dietary and lifestyle advice versus laxatives, unfortunatley the trial failed to recruit sufficient participants and therefore analysis was not possible.

Abdominal massage

Studies have suggested that abdominal massage produces a measurable response in the rectum and anus particularly for patients with neurogenic bowel dysfunction (Coggrave, 2007 and Coggrave, 2008). It is believed that massage may trigger the somato-visceral reflexes, stimulate peristalsis, decrease colonic transit time and increase bowel movement frequency (Coggrave, 2005). Abdominal massage has also been demonstrated to aid relaxation, reduce discomfort and pain and improve patient's quality of life (Lamas., Graneheim and Jacobsson, 2012)

Laxatives

Laxatives are recommended for patients where diet and lifestyle modifications have proved ineffective or while waiting for these to take effect. For those individuals taking medication that can constipate and that cannot be altered or stopped, those with secondary constipation and those on opioid medications (NICE, Clinical Knowledge Summaries, 2014). It can take several months to reduce the amount of laxatives taken – however the continued requirement for laxatives should be reviewed every three months (British Medical Association and Royal Pharmaceutical Society, 2015).

Where laxative medication is required, recommendations are to start with a bulk forming laxative. However for some patients (such as the frail elderly) this may be difficult as they require a good fluid intake (NICE, Clinical Knowledge Summaries, 2014).

The type of laxative required will depend on;

- Presenting symptoms – if a patient has slow colonic transit a stimulate laxative may be most effective
- Nature of complaint – depending on the patients underlying condition such as neurogenic bowel with multiple sclerosis or spinal injury
- Side –effects
- Speed of action
- Patient acceptability
- Compliance/concordance

Types of Laxatives

Bulk forming

- Fybogel®, Celvevac® Normacol®, Regulan®

These act like dietary fibre, by increasing the water content and faecal mass, this leads to an increase stool weight and frequency. Usually work within 24 -36 hours

Stimulant

- Senna®, Bisacodyl®, co-danthramer®, co-danthrasate®, dioctyl®, docusol®

These stimulate an increase in colonic motility (peristalsis) and mucus secretion. They are rapid acting, usually taking effect in 8-12 hours. They are best taken in evening or at bedtime. Stimulant laxatives are effective when used with bowel management programmes, where predictable rectal contents are required prior to performing digital stimulation or digital removal of faeces.

Osmotic

- Lactulose ® and Magnesium salts

Osmotic laxatives act by drawing fluid from the body into the bowel by osmosis. This increases the water content of the faeces making it softer and easier to pass.

Iso-osmotic - Macrogol oral powder compound (3350) (Polyethylene glycol, PEG)

- Cosmocol®, Laxido®, Movicol®

Macrogol laxatives increase stool water content and directly trigger colonic propulsive activity and defaecation. This has a 4 in 1 mode of action: Bulks, softens, stimulates and lubricates.

Rectal stimulants

- Bisacodyl and Glycerine suppositories

Rectal stimulant can be used alone or in combination with digital stimulation and digital removal of decease. The advantage of suppositories for many patients is that they are predictable.

(British Medical Association and Royal Pharmaceutical Society, 2015).

Cost effectiveness

Macrogol laxatives are increasingly being used as a first line treatment for chronic constipation (Ramkumar and Rao, 2005). There is also clear evidence that macrogol (PEG) is superior to lactulose (Lee-Robichaud et al, 2011 and Belsey., Geraint and Dixon, 2010) and ispagula husk (Wang et al, 2004). In two systematic reviews (Belsey., Geraint and Dixon, 2010 and Lee-Robichaud et al, 2011), PEG has been shown to be more effective than lactulose for the treatment of chronic constipation. PEG showed a significant increase in mean defaecations per week when compared with lactulose, this was also shown in comparison with ispagula (Belsey, Geraint and Dixon, 2010). Tolerability to PEG was reported as generally good. In a systematic review, Guest., Clegg and Helter (2008) concluded that from an NHS perspective, macrogol 4000 was cost effective compared with lactulose for the treatment of chronic constipation. This is supported by Taylor and Guest (2010), who concluded that macrogol 3350 affords the NHS a cost-effective and more efficacious option than lactulose (Attar et al,1999) for the management of constipation.

Conclusion

Chronic constipation is a major reason for people presenting to healthcare professionals within the community. Chronic constipation is expensive for both patients, in distress and discomfort as well as time off work and the NHS, with significant amounts of community nursing staff time spent on

treatment and management. With correct assessment the treatment of constipation can be improved. Although laxative use is often required to treat the initial acute constipation, modifications to diet and lifestyle should also be made to prevent future episodes and reduce the amount of laxatives required.

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